AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims

Claim 1 (withdrawn) A carbon nanotube mesh comprising:

a plurality of intertwined free-standing carbon nanotubes fixedly attached to

a substrate for separating, concentrating, and/or filtering molecules flowed through

said mesh.

Claim 2 (withdrawn) The carbon nanotube mesh of claim 1,

wherein said carbon nanotubes extend randomly into free space from said

substrate characteristic of free-growth structures.

Claim 3 (withdrawn) The carbon nanotube mesh of claim 1,

wherein the surfaces of said carbon nanotubes are functionalized to

chemically select/discriminate molecules.

Claim 4 (withdrawn) The carbon nanotube mesh of claim 3,

wherein the surfaces of said carbon nanotubes are functionalized with a

nanotube coating.

Claim 5 (withdrawn) The carbon nanotube mesh of claim 4,

wherein the nanotube coating comprises a chemical derivatization.

Claim 6 (withdrawn) The carbon nanotube mesh of claim 1,

wherein said carbon nanotube mesh has pore sizes of 10 to 200 nanometers.

Claim 7 (currently amended) A method of fabricating a carbon nanotube mesh,

comprising:

depositing a thin film of iron as a CVD growth catalyst on a substrate; and

~~growing~~ passing products of hydrocarbon pyrolysis over the CVD growth

catalyst to grow a plurality of intertwined free-standing carbon nanotubes on

and randomly extending from a the substrate to produce the carbon nanotube

mesh fixedly attached thereto, ~~and~~ said growing step including controlling CVD

pyrolysis parameters to produce irregularly sized mesh pores of 10 to 200

nanometers between said nanotubes capable of separating, concentrating,

and/or filtering molecules flowed through said carbon nanotube mesh.

Claim 8 (canceled)

Claim 9 (currently amended) The method of claim ~~5~~ 7,

further comprising functionalizing the surfaces of said carbon nanotubes

to chemically select/discriminate molecules.

Claim 10 (original) The method of claim 9,

wherein the surfaces of said carbon nanotubes are functionalized by

applying a nanotube coating having the desired functionality.

Claim 11 (original) The method of claim 10,

wherein the nanotube coating comprises a chemical derivatization.

Claims 12 and 13 (canceled)

Claim 14 (currently amended) The method of claim ~~13~~ 7,

wherein the CVD growth process includes pyrolysis of a mixture of

ethylene, hydrogen, and argon at 850 degrees Celsius.

Claims 15 and 16 (canceled)

Claim 17 (currently amended) The method of claim ~~16~~ 7,

wherein the thin film iron catalyst has a thickness of about 5 nanometers.

Claim 18 (withdrawn) A carbon nanotube mesh produced according to the method of claim 7.

Claim 19 (withdrawn) A method of separating, concentrating, and/or filtering molecules comprising:

flowing said molecules into a carbon nanotube mesh comprising a plurality of intertwined free-standing carbon nanotubes fixedly attached to a substrate, whereby said carbon nanotube mesh operates as an active medium for separating, concentrating, and/or filtering said molecules.

Claim 20 (withdrawn) The method of claim 19,

wherein the flow into the carbon nanotube mesh is a pressure driven flow.